		NTSB ID: DCA04MA068		Aircraft Registration Number: N586P	
		Occurrence Date: 08/13/2004		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Florence		State KY	Zip Code	Local Time 0049	Time Zone CDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility: 2			
Aircraft Information Summary					
Aircraft Manufacturer Convair Div. of Gen. Dynamics		Model/Series CV-340 (580)		Type of Aircraft Airplane	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>*** Note: NTSB investigators traveled in support of this investigation and used data obtained from various sources to prepare this aircraft accident report. ***</p> <p>The Board's full report is available at http://www.nts.gov/publicn/publicn.htm, AAR-06/03, PB2006-910403.</p> <p>On August 13, 2004, about 0049 eastern daylight time, 1 Air Tahoma, Inc., flight 185, a Convair 580, N586P, crashed about 1 mile south of Cincinnati/Northern Kentucky International Airport (CVG), Covington, Kentucky, while on approach to runway 36R. The first officer was killed, and the captain received minor injuries. The airplane was destroyed by impact forces. The flight was operating under the provisions of 14 Code of Federal Regulations (CFR) Part 121 as a cargo flight for DHL Express² from Memphis International Airport (MEM), Memphis, Tennessee, to CVG. Visual meteorological conditions prevailed for the flight, which operated on an instrument flight rules flight plan.</p> <p>The flight crew was scheduled to fly the accident airplane on a roundtrip sequence from MEM to CVG.³ Flight 185 departed MEM about 2329. The first officer was the flying pilot, and the captain performed the nonflying pilot duties. During postaccident interviews, the captain stated that the takeoff and climb portions of the flight were normal.</p> <p>According to the cockpit voice recorder (CVR) transcript, at 0017:49, the captain stated that he was just going to "balance out the fuel here."⁴ The first officer acknowledged. From 0026:30 to 0027:08, the CVR recorded the captain discussing the airplane's weight and balance with the first officer. Specifically, the captain stated, "couldn't figure out why on the landing I was out and I was okay on the takeoff." The captain added, "the momentum is one six six seven and I...put one zero six seven and I couldn't work it." He then stated, "so...we were okay all along."</p> <p>At 0030:40, the first officer stated, "weird." At 0032:31, the captain stated, "okay just let me finish this [the weight and balance paperwork] off and...I'm happy," and, about 2 minutes later, he stated, "okay, back with you here." At 0037:08, the captain contacted Cincinnati Terminal Radar Approach Control (TRACON) and reported an altitude of 11,000 feet mean sea level.⁶ About 1 minute later, the first officer stated, "something's messed up with this thing," and, at 0039:07, he asked "why is this thing?" At 0041:21, the first officer stated that the control wheel felt "funny." He added, "feels like I need a lot of force. it is pushing to the right for some reason. I don't know why...I don't know what's going on." The first officer then repeated twice that it felt like he needed "a lot of force." The CVR did not record the captain responding to any of these comments.</p> <p>At 0043:53, when the airplane was at an altitude of about 4,000 feet, the captain reported to Cincinnati TRACON that he had the runway in sight. The approach controller cleared flight 185 for a visual approach to runway 36R and added, "keep your speed up." The captain acknowledged the</p>					
FACTUAL REPORT - AVIATION					

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: DCA04MA068

Occurrence Date: 08/13/2004

Occurrence Type: Accident

Narrative (Continued)

clearance and the instruction. The first officer then stated, "what in the world is going on with this plane? sucker is acting so funny." The captain replied, "we'll do a full control check on the ground." At 0044:43, the approach controller again told the captain to "keep your speed up" and instructed him to contact the CVG Air Traffic Control Tower (ATCT).

At 0045:11, the captain contacted the CVG ATCT and requested clearance to land on runway 36R, and the local control west controller issued the landing clearance. Flight data recorder (FDR) data indicated that, shortly afterward, the airplane passed through about 3,200 feet, and its airspeed began to decrease from about 240 knots indicated airspeed. At 0045:37, when the airplane was at an altitude of about 3,000 feet, the captain started the in-range checklist, stating, "bypass is down. hydraulic pressure. quantity checks. AC [alternating current] pump is on. green light. fuel panel. boost pumps on."

About 0046, the first officer stated, "I'm telling you, what is wrong with this plane? it is really funny. I got something all messed up here." The captain replied, "yeah." The first officer then asked, "can you feel it? it's like swinging back and forth." The captain replied, "we've got an imbalance on this...crossfeed I left open." The first officer responded, "oh, is that what it is?" A few seconds later, the first officer stated, "we're gonna flame out." The captain responded, "I got the crossfeed open. just keep power on."

At 0046:45, the CVR recorded a sound similar to decreasing engine rpm. Immediately thereafter, the first officer stated, "we're losing power." At 0046:52, the first officer stated, "we've lost both of them. did we?" The captain responded, "nope." FDR data showed that, about 1 second later, a momentary electrical power interruption occurred when the airplane was at an altitude of about 2,400 feet. At 0046:55, the CVR stopped recording. Airplane performance calculations indicated that, shortly after the power interruption, the airplane's descent rate was about 900 feet per minute (fpm).

According to air traffic control (ATC) transcripts, at 0047:12, the captain reported to the CVG ATCT that the airplane was "having engine problems." The local control west controller asked, "you're having engine problems?" The captain replied, "affirmative." At 0047:28, the controller asked the captain if he needed emergency equipment, and the captain replied, "negative." This was the last transmission received by ATC from the accident flight crew. The FDR continued recording until about 0049. The wreckage was located about 1.2 miles short of runway 36R.

FINDINGS

1. The captain and first officer were properly certificated and qualified under Federal regulations.
2. No evidence indicated that flight crew fatigue was a factor in this accident, and no evidence indicated any preexisting medical or behavioral conditions that might have affected the accident flight.
3. The airplane was properly maintained in accordance with Federal regulations and approved company procedures.
4. The recovered components showed no evidence of any preexisting powerplant, system, or structural failures. No evidence indicated that any of the airplane's cargo shifted during the flight.
5. Neither the weather nor the inoperative distance measuring equipment on the Cincinnati/Northern Kentucky International Airport very high frequency omnidirectional range was a factor in this accident.
6. Sufficient fuel was on board the airplane for the flight from Memphis International Airport to Cincinnati/Northern Kentucky International Airport.

National Transportation Safety Board

FACTUAL REPORT**AVIATION**

NTSB ID: DCA04MA068

Occurrence Date: 08/13/2004

Occurrence Type: Accident

Narrative (Continued)

7. The captain's preflight weight and balance calculations indicated that the airplane was not within takeoff limits; therefore, he should not have allowed the airplane to take off. However, the captain's calculations were incorrect, and the airplane's weight and balance were within limits.

8. The captain did not recognize the importance of the cues provided by the first officer, and he failed to perform expected pilot-in-command duties.

9. The captain was preoccupied with the weight and balance calculations during critical portions of the flight and, as a result, he did not monitor the fuel crossfeed operations, which resulted in a fuel imbalance and unusual airplane handling characteristics.

10. The flight crew did not monitor the fuel quantity gauges or respond properly to the airplane's changing handling characteristics, and the captain did not start the in-range checklist at the appropriate altitude; as a result, the crew missed several opportunities to identify the ongoing fuel crossfeed operations and determine that the airplane's fuel was imbalanced.


11. Although fuel transfer is prohibited on the Convair 580 airplane, fuel transfer can occur during fuel crossfeed operations if the fuel tank shutoff valve for the tank not being used is left open.


12. All of the fuel from the airplane's left tank that was not used by the engines transferred into the right tank because the captain intentionally kept the right fuel tank shutoff valve open during fuel crossfeed operations, which was not in accordance with approved fuel crossfeed procedures.


13. During the airplane's descent to landing, the fuel in the left fuel tank, which was providing fuel to both engines, was exhausted because both engine-driven fuel pumps drew air from the left tank into the fuel system instead of fuel from the right tank, resulting in a dual-engine flameout.

14. Fuel transfer can occur on the Convair 580 airplane if it is operated with different fuel boost pump output pressure settings and with the fuel crossfeed valves unintentionally left open.

15. The accident investigation would have benefited from the retrofit of an independent cockpit voice recorder power source and a cockpit image recorder.

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: DCA04MA068				
		Occurrence Date: 08/13/2004				
		Occurrence Type: Accident				
Landing Facility/Approach Information						
Airport Name CINCINNATI/NORTHERN KENTUCKY I		Airport ID: CVG	Airport Elevation 896 Ft. MSL	Runway Used 36R	Runway Length 10000	Runway Width 150
Runway Surface Type: Concrete						
Runway Surface Condition: Dry						
Approach/Arrival Flown: Visual						
VFR Approach/Landing: None						
Aircraft Information						
Aircraft Manufacturer Convair Div. of Gen. Dynamics		Model/Series CV-340 (580)		Serial Number 68		
Airworthiness Certificate(s): Transport						
Landing Gear Type: Retractable - Tricycle						
Amateur Built Acft? No		Number of Seats: 2		Certified Max Gross Wt. 54600 LBS	Number of Engines: 2	
Engine Type: Turbo Prop		Engine Manufacturer: Rolls-Royce		Model/Series: 501-D13	Rated Power: 3750 HP	
- Aircraft Inspection Information						
Type of Last Inspection Continuous Airworthiness		Date of Last Inspection 07/2004	Time Since Last Inspection Hours		Airframe Total Time 67948.9 Hours	
- Emergency Locator Transmitter (ELT) Information						
ELT Installed?/Type No		ELT Operated? No		ELT Aided in Locating Accident Site? No		
Owner/Operator Information						
Registered Aircraft Owner N580, Inc		Street Address				
		City Spanaway		State WA	Zip Code	
Operator of Aircraft AIR TAHOMA INC		Street Address				
		City Columbus		State OH	Zip Code	
Operator Does Business As:				Operator Designator Code: I5HA		
- Type of U.S. Certificate(s) Held:						
Air Carrier Operating Certificate(s): Flag Carrier/Domestic; Supplemental						
Operating Certificate:			Operator Certificate:			
Regulation Flight Conducted Under: Part 121: Air Carrier						
Type of Flight Operation Conducted: Non-scheduled; Domestic; Cargo						
<div style="text-align: center;">FACTUAL REPORT - AVIATION</div> <div style="text-align: right;">Page 2</div>						

		NTSB ID: DCA04MA068																																																																																													
		Occurrence Date: 08/13/2004																																																																																													
		Occurrence Type: Accident																																																																																													
First Pilot Information																																																																																															
Name On File		City		State	Date of Birth On File	Age 49																																																																																									
Sex: M	Seat Occupied: Left	Occupational Pilot?		Certificate Number:																																																																																											
Certificate(s): Airline Transport; Flight Engineer; Foreign; Private																																																																																															
Airplane Rating(s): Multi-engine Land; Single-engine Land																																																																																															
Rotorcraft/Glider/LTA: None																																																																																															
Instrument Rating(s): Airplane																																																																																															
Instructor Rating(s): None																																																																																															
Current Biennial Flight Review? 07/2004																																																																																															
Medical Cert.: Class 1		Medical Cert. Status: With Waivers/Limitations		Date of Last Medical Exam: 04/2004																																																																																											
<table border="1"> <thead> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> </thead> <tbody> <tr> <td>Total Time</td> <td>2500</td> <td>1337</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td></td> <td>88</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instruction Received</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>32</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>28</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air	Actual	Simulated	Total Time	2500	1337									Pilot In Command(PIC)		88									Instructor											Instruction Received											Last 90 Days	32										Last 30 Days	28										Last 24 Hours	2									
- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night							Instrument					Rotorcraft	Glider	Lighter Than Air																																																																												
						Actual	Simulated																																																																																								
Total Time	2500	1337																																																																																													
Pilot In Command(PIC)		88																																																																																													
Instructor																																																																																															
Instruction Received																																																																																															
Last 90 Days	32																																																																																														
Last 30 Days	28																																																																																														
Last 24 Hours	2																																																																																														
Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? Yes		Second Pilot? Yes																																																																																									
Flight Plan/Itinerary																																																																																															
Type of Flight Plan Filed: IFR																																																																																															
Departure Point		State	Airport Identifier	Departure Time	Time Zone																																																																																										
Memphis		TN	MEM																																																																																												
Destination		State	Airport Identifier																																																																																												
Same as Accident/Incident Location			CVG																																																																																												
Type of Clearance: IFR																																																																																															
Type of Airspace:																																																																																															
Weather Information																																																																																															
Source of Wx Information:																																																																																															
Commercial Weather Service																																																																																															

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: DCA04MA068	
		Occurrence Date: 08/13/2004	
		Occurrence Type: Accident	


Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
	0050		Ft. MSL	NM	Deg. Mag.
Sky/Lowest Cloud Condition:			Ft. AGL	Condition of Light:	
Lowest Ceiling: Overcast		7500 Ft. AGL		Visibility: 10 SM	Altimeter: 30.02 "Hg
Temperature: 13 °C	Dew Point: 11 °C	Weather Conditions at Accident Site: Visual Conditions			
Wind Direction:	Wind Speed:	Wind Gusts:			
Visibility (RVR): Ft.	Visibility (RVV) SM				
Precip and/or Obscuration: No Obscuration; No Precipitation					

Accident Information					
Aircraft Damage: Destroyed		Aircraft Fire: None		Aircraft Explosion: None	

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot			1		1
Second Pilot	1				1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -	1		1		2
Other Ground	0	0	0		0
- GRAND TOTAL -	1	0	1		2

--	--	--	--	--	--

FACTUAL REPORT - AVIATION					
---------------------------	--	--	--	--	--

 National Transportation Safety Board FACTUAL REPORT AVIATION	NTSB ID: DCA04MA068	
	Occurrence Date: 08/13/2004	
	Occurrence Type: Accident	
Administrative Information		
Investigator-In-Charge (IIC) Joseph M. Sedor		
Additional Persons Participating in This Accident/Incident Investigation: Tony James AAI-100, Washington, DC Brian Mathis Air Tahoma Matt Palmberg Kelowna Flightcraft LTD. Rick Thorpe Rolls-Royce Corporation David McNair Transportation Safety Board of Canada		
<div>FACTUAL REPORT - AVIATION</div> <div>Page 5</div>		